Exchequer, viewing the circumstances of Wales, Ireland, England, and Scotland, to make a very substantial contribution to the funds of the University. The building fund of the college at Bangor has already received a Treasury grant (20,000*l.*), and it is the duty of the people of North Wales to complete that work; but in regard to what has been said about raising the status and improving the staff and equipment of the college, Dr. Lloyd George fully approved of every word. One of the first things will be to increase the salaries of those who have devoted their ability to establishing and maintaining higher education in Wales. It cannot be expected that the services of the best men will be secured at the present inadequate salaries. The sacrifices made by those who have remained on in spite of better inducements elsewhere are appreciated, but the time has come to recognise the fact that if a first-rate staff is wanted it must be made worth while for the members of the staff to remain. At present the professors too often do work which ought to be relegated to tutors.

Turning to the question of research, Dr. Lloyd George pointed out that what is wanted is not only teachers, but also explorers. Science has its dark continents, unlimited continents—mapless, unlimited oceans—chartless. He would believe in the triumph of Welsh education when he could see sheets that are now mere outlines crowded with the discoveries of Welsh explorers. The greatest universities are, however, not the product of thirty years. There should be closer contact between the universities and the Welsh industries. Germany has said, "You must have a university to teach and to educate and to develop the German mind," and now the effect is seen in the German industries.

Dr. Lloyd George went into one of the largest workshops in Germany three months ago, and was taken round by a professor. He asked what a professor had to do with it, and was told "The professors are our experts." The Germans get their ideas from their professors. We in this country heave coal and blast rocks, but the great industries that finish these products are elsewhere. We must start as discoverers. All this is coming. Bangor has two factories, one in the lower town and one new factory the buildings of which are beginning to rise in Upper Bangor, while in Cardiff, also, new buildings have been erected for the University College, which, however, are not nearly so fine and imposing as the municipal buildings. These are the factories where the future of the country is being forged. There is no investment that will produce such a return, not to the investor, but to generations to come, as the endowment of higher education. The Chancellor of the Exchequer further referred to what has been done in the past by the people of Wales, the need of private as well as public support, and the future prospects of the University. G. H. B.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Mr. J. M. Dobbs has been appointed chairman of the examiners for part i. of the mathematical tripos, 1909 (old regulations), and Mr. Fitzpatrick chairman of the examiners for the natural sciences tripos, 1909.

The general board of studies has approved for the degree of Doctor in Science Prof. W. W. Watts, F.R.S., and Prof. T. J. I'A. Bromwich, F.R.S.

The general board of studies will shortly proceed to the appointment of a university lecturer in zoology. Candidates are requested to send their applications, with testimonials if they think fit, to the Vice-Chancellor on or before December 2.

Mr. A. Wood has been appointed demonstrator of experimental physics.

LONDON.—The Senate of the University has awarded the Rogers prize of 100*l.* for original research in medical science to be divided equally between Dr. David Forsyth, assistant physician to Charing Cross Hospital, and Mr. F. W. Twort, assistant bacteriologist to the London Hospital.

MANCHESTER.—The completion of the new buildings of the Manchester Royal Infirmary, in close proximity to the University, has already led to a marked increase in the number of students entering for courses in the medical school. The new hospital, which is to be formally opened next year by His Majesty the King, is to be occupied by the end of the present month.

The new buildings of the engineering department are making rapid progress, and a portion is already in use. The extension of the chemical laboratories has also been commenced; the additional accommodation, which will cost from 15,000*l.* to 20,000*l.*, will be primarily devoted to the increasing requirements of research in organic chemistry.

The establishment of a new chair in botany, for which an endowment was received some months ago, is in contemplation.

The Court has resolved to recognise the Harris Institute, Preston, as a privileged institution, attendance at courses in mathematics, physics, and chemistry being accepted as satisfying the attendance requirements for the Inter. B.Sc. and Inter. B.Sc. Tech. courses.

Up to October 30 the number of students who have entered for courses of study in the University is 1320, against 1219 a year previously.

DR. GEORGE DEAN, chief bacteriologist at the Lister Institute of Preventive Medicine, has been appointed to succeed Prof. D. J. Hamilton in the chair of pathology in the University of Aberdeen.

MR. G. H. KENRICK, Lord Mayor of Birmingham, has made a gift of 10,000*l.* towards the funds of Birmingham University. This is his third contribution toward the development of the University, his total gifts amounting to a sum of 25,000*l.*

MR. H. G. WELLS will preside at the first annual dinner of old students of the Royal College of Science, to be held at the Criterion Restaurant, Piccadilly Circus, on Wednesday, December 9. Dinner tickets, price 7*s.* 6*d.*, may be obtained from the honorary secretary of the dinner committee, Mr. T. L. Humberstone, 3 Selwood Place, Onslow Gardens, London, S.W. It is hoped that the dinner will lead to the formation of an association of old students of the college.

PROF. PERRY has again sent us the balance-sheet referring to bursaries distributed by him to students at the Royal College of Science, South Kensington, during the two sessions 1906–7 and 1907–8. The fund for these bursaries represents a response to an appeal made by Prof. Perry for the means to assist deserving students at the college with secret gifts when necessary, it being understood that every student who receives such assistance shall repay the money to the fund when in a position to do so. Among the contributions to the fund are 100*l.* each from the Drapers', Goldsmiths' and Skinners' Companies, and 50*l.* from the Clothworkers' Company. As a number of students at the college have to maintain themselves and purchase their books and instruments out of scholarships having a value of about 17*s.* 9*d.* a week each, the institution by Prof. Perry of a system of small bursaries privately bestowed has provided a means of preventing unnecessary privation without injuring the self-respect of the recipients.

A COMMON criticism of the methods of teaching science adopted in schools for girls is that they are too academic and have little or no bearing upon the duties the girls will be called upon to perform in after life. This weakness is, we are glad to know, becoming less common, and earnest efforts are being made in several centres to arrange courses of work in which elementary science and the home arts are taught together, the latter being treated largely as applications of the former. In a recent address to the Teachers' Guild, Mr. John Wilson, president of the Association of Technical Institutions, dealt exhaustively with the methods by which science can be connected with domestic training. His address is printed in *Education* for November 6 last. Mr. Wilson is of opinion that, ideally, the teacher should be a woman, thoroughly well skilled in chemistry and physics, &c., and a first-class diplomée in cookery, laundry work, and housewifery. At

present such women cannot be obtained. Referring to students undergoing training with the view of teaching home arts scientifically, he said the main difficulties the instructors of these students have to contend with are that, even at this late date, a number of the students have not had any previous scientific training at the secondary school. Many of the students *will* keep their minds in water-tight compartments. To them, the science work is one thing, the domestic subjects another, and between the two they draw no connections; and, greatest of all, to develop the subject logically we have to work in the laboratory from the simple to the complex.

LORD ROSEBERY, Chancellor of the University of London, in opening University College Hall, Ealing, on Tuesday, made some remarks upon the functions of a university. The hall provides a place of residence for students at the college. In declaring the building open, Lord Rosebery said it marked another milestone on that path of university development which seemed to open broader and with more promise at every step. First, the University of London was a purely examining university, then it developed into a teaching university, and now it is a university with some of the old collegiate aspects as well. The University is no longer, if it ever was, a purely London university; it is more and more developing into an imperial university. Each day sees it summoning from every part of Great Britain and of the British Empire students anxious to obtain the advantages of its constituent schools. A university should comprehend everything that is wholesome and valuable for the development of brain and of character. The hall now opened is one of the many symptoms of the growth of corporate life in the University. University associations of various kinds are growing up, and it is obviously a very thin-blooded, one-sided university that only provides for the intellect of its students. Human sympathy, human contact, all the valuable human elements that go to build up character are required, for a university which produces nothing but brain and neglects the formation of character is no university at all. The function of a university is not merely to pump knowledge into units by teaching and to extract it afterwards by examination, but to produce living men, who are going to take a part in the vast fabric of society within these islands.

THROUGH the generosity of Mr. Edric Bayley, who gave a sum of 5000*l.* to the building extensions, and by a large supplementary sum given by the County Council, a considerable extension has been made at the Borough Polytechnic Institute. It consists, in the first place, of a large examination hall, which can also be used for entertainments and public meetings, and below this hall new laboratories and class-rooms have been built. A very complete laboratory for oil and colour work is one of the most striking of the additions. This has accommodation for forty students, besides the lecture theatre, balance room, and laboratory; there is also a portion set apart for colour mixing and for grinding of colours, so that, besides working on the test-tube scale in the laboratory, the students can work on a semi-commercial scale. There is also an extension to the bakery department and a new book-binding workshop. The opening ceremony took place on Friday evening, November 13, when Lord Carrington, in a short speech, declared the buildings open. He referred to the fact that when he was at school, although the fees were high, they learnt very little except Latin and Greek. Science and laboratory equipment were absolutely unknown, and now in London, and also in the provinces, the highest scientific training can be obtained almost for the asking. He thought that the nation owed a very great debt of gratitude to public supporting men like Mr. Bayley, who made it possible for education to be placed within the reach of even the poorest. The chairman, Mr. Spicer, in his opening remarks said that the governing body will be well repaid for any trouble they have taken by the stimulus given to the work of the institute by the erection of these new buildings. Sir Philip Magnus, chairman of the education committee of the institute, said that the governors have always resisted the temptation to use the institute as a place for obtaining degrees, as it was founded to give education to the artisan classes, and they have always kept this object in view in any alterations or extensions. The trade classes are particularly fostered in the institute. Mr. Robinson, chairman of the London County Council, expressed his pleasure at being present, and said that the County Council, before it gives money, always wishes to know whether it gets value for money, and there is no doubt that in giving to an institute of this kind value is obtained.

THERE has been in recent years a serious decline in the number of pupils studying German in the secondary schools throughout the country. It is true that many subjects clamour for increased attention and others for recognition in the curriculum of these schools, while the number of hours available for instruction is limited. Headmasters find it difficult nicely to adjudicate between the conflicting claims; but from the point of view of the man of science and of the needs of great commercial houses the claims of German to generous recognition seem very strong. We are glad, therefore, to notice that a letter on the subject, signed by representatives of the Modern Language Association, the London Chamber of Commerce Education Committee, the Society of University Teachers of German, the Teachers' Guild, and the British Science Guild has been sent to the President of the Board of Education urging the paramount importance of encouraging the study of German in secondary schools. The letter points out that there is much to do if the unfortunate decay of German teaching is to be checked, and it proceeds:—"We therefore venture to suggest that your Board should consider the desirability of calling the attention of educational authorities, governing bodies, and the principals of secondary schools to the steady decline in the study of German, and should, by means of a circular, as in the case of Latin, or such other method as may be thought fit, submit to those authorities and to the public generally the many weighty and urgent reasons for regarding an acquaintance with German as being of the first importance to great numbers of young men and women, and a widespread knowledge of the language a national necessity. We would urge, moreover, that the Board should encourage and foster schools of the type of the German Realschule and Oberrealschule, in which two modern languages, but not Latin, are taught. The latter of these in Prussia ranks in standing with the Gymnasium, and its leaving certificate confers the same rights. Of schools devoting special attention to modern, as against classical, languages, there are at present in this country very few. Lastly, we would suggest that it should, as a general rule, be required that schools should make provision for the teaching of German to those pupils who wish to learn it, as it is now required that provision should be made for the teaching of Latin."

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 28.—"Transparent Silver and Other Metallic Films." By Prof. Thomas **Turner.**

In a Bakerian lecture, delivered fifty-one years ago, Faraday showed that thin sheets of gold or silver, if mounted on glass and heated, became transparent. Beilby has also studied the annealing of gold-leaf and wire. The present research deals with a study of the conditions under which gold and silver become transparent, and extends the inquiry to copper and to certain other metals. It is shown that gold when about 1/300,000th of an inch in thickness becomes transparent if heated to 550° C. for a few moments. The effect is the same whether the atmosphere be oxidising or reducing, and if the supporting medium be changed. Transparency is due to the gold aggregating, and permitting white light to pass through the intermediate spaces.

In the case of silver the effect is quite different. No transparency is obtained with sheets about 1/120,000th of an inch in thickness so long as the atmosphere is a reducing one, such as hydrogen or coal gas. In air, however, transparency begins at about 240°, and is complete in a few moments at 390°. White light is now transmitted, and the transparency is remarkably complete. Transparent silver does not become opaque if heated in a reducing atmosphere, but it can be converted into the